Modern Concepts of Cardiovascular Disease

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MANAGEMENT OF THE CHILD WITH RHEUMATIC HEART DISEASE

There is no known successful remedy in rheumatic heart disease. Drugs are of value only in certain passing phases, treatment by vaccines or sera has proved disappointing, and dietary regulation is of less than major importance. Certain measures can be taken to place a child with this condition in as favorable an environment as possible for recovery, but if good fortune does not prevail, the physician must stand by and see his patient steadily decline. On the other hand, all advice as to care may be consistently ignored, and the child, seen perhaps after a lapse of a year or two, found to be in excellent condition.

Care of the child will involve not only therapeutic measures designed to alleviate his condition as one finds it, but also efforts to prevent further damaging incidents.

If the child is very ill when first seen, attention will probably center on the heart as a more or less isolated organ. Treatment directed to the heart itself will depend on the stage of the disease. In acute carditis, the physician must realize that he is dealing with inflamed tissue, and that drugs at present available cannot be expected to influence the inflammatory process. The cardiac muscle cannot be put at rest, but as close an approach as possible to this should be secured. The child should be comfortably settled in bed, hypnotics used if necessary to induce regular and restful sleep, and, in the presence of pain, morphine or other opium derivatives given freely. Too much emphasis cannot be placed on the necessity for rest and quiet as essential to a favorable outcome. Pressure from the child or his parents to shorten the rest period will tax the physician's patience, but he must meet this pressure understandingly, trying to avoid unnecessary fright to the family while remaining firm in his insistence on an adequate period of complete inactivity. A high caloric diet should be given, and regular elimination secured by means of some such mild laxative as mineral oil or agar. Salicylates are of value only if high fever and inflamed joints are present, and apparently do not affect the rheumatic process within the heart. Cardiac stimulants, such as brandy, strychnine, adrenalin or caffeine are to be avoided. Digitalis will be found ineffective at this time. Heat, or sometimes ice, applied to the precordium, may be welcome.

One cannot say how long this acute phase may last, or whether the subsequent course will be toward recovery or toward a graver stage. Congestive failure may develop at this time or later in the course of the disease. Failure may be closely associated with the inflammatory process, or may seemingly be a result of myocardial exhaustion. Specific treatment can be applied to this condition, but we must bear in mind that the basic power of the heart itself to sustain its action is our most potent weapon. Orthopnea should be minimized by propping the child up in bed. It is desirable to limit fluid intake and if possible keep it below the urinary output. Digitalis should be tried and its effect observed. It should be discontinued at once if headache, nausea, vomiting or premature ventricular beats appear. Diuretics such as theocin, theobromine sodium salicylate, or salyrgan may be used. Saline cathartics are not advisable, since they are too disturbing to the patient. Intravenous injection of glucose, in solution of about 25%, may be given two or three times daily and may prove of great benefit. In the presence of venous engorgement venesection may be done. This is not used as widely in practice among children as with adults. If a large pericardial effusion develops, paracentesis will be considered, although its value is doubtful. Large accumulations of fluid in the pleural or peritoneal cavities may also be removed by paracentesis.

The stage of chronic heart disease may be reached after either or both of the above stages, or it may develop insidiously, and be the type found when the child is first seen by the physician. These cases comprise a large part of practice among rheumatic fever patients, and are the ultimate test of the physician's skill in a very difficult field. They range, in degree of severity, from those who develop dyspnea on the slightest exertion and who must remain at rest in bed indefinitely, to those in whom the diagnosis of rheumatic heart disease is not even certain, and who are unrestricted or almost unrestricted in activity. Once the diagnosis of rheumatic heart disease is made with a fair degree of certainty, it is advisable to put the child to bed, if possible, for a period of observation. How long the child need remain in bed

obviously cannot be stated dogmatically. Pulse rate, respirations, temperature course, leucocyte counts, throat cultures, sedimentation rate, electrocardiograms, Roentgenograms, all may be used to contribute evidence and help to indicate the child's progress. The judgment of the physician as to the condition of the child, however, must be the final court governing the duration of the rest period. In any case return to activity should be gradual and the effect of each new privilege carefully observed. It is often at the time that permission is first given to relax the stringent regulations keeping the child in bed that he gets quickly out of hand. "A little activity" is a difficult thing to enforce. Children are not easily taught to move deliberately, as are adults in tuberculosis sanatoria,—at the first loosening of the reins they tend to go into full activity with other children of their age. Drugs play a minor role in the regime. If cardiac damage is severe, digitalis will be given a thorough trial. A tentative calculated dosage of 40 milligrams per kilogram of body weight may be used, but effective dosage is not so uniform as in adults. Digitalization within forty-eight hours is desirable, thereafter keeping the child on a maintenance dose. Pulse rate in children may not be affected by digitalis. The best guide to dosage is the electrocardiogram, using a P-R interval of 0.2 as an indication that digitalization has occurred, providing of course, that this interval was normal before digitalis was started.

Small transfusions of blood, preferably from a donor convalescent from rheumatic fever, should be tried if the child's progress is not satisfactory. This is a logical, though little used therapeutic measure. Operative procedures, such as cardiac decompression should be considered if adhesive mediastinitis and pericarditis with cardiac compression are present, or when the heart reaches an excessive size. Careful attention will be given to the diet, and the child offered a wide choice of foods at regular intervals. The caloric intake of course will be watched, and all vitamins provided in some excess. During the summer months exposure to sunlight seems of value, and a sun lamp or ultra-violet light may be used during the winter months. As the child's strength increases, regular moderate exercise, under careful supervision, is desirable, but must be kept well within the child's functional capacity.

In management of the long and often discouraging stage of chronic heart disease the physician cannot fix his attention exclusively on the heart. He must not forget that he is dealing with a frightened, hurt child, and endeavor at every opportunity to keep up morale. He cannot, or should not leave the child in bed with only his own thoughts to occupy him. Some occupation, such as reading, weaving, modeling, painting, should be allowed as soon as possible. A possible early return to school for short sessions will often be found the most encouraging promise to offer. After the child reaches a certain period in his convalescence it will be noted that his day is quieter if he is allowed to attend school for a limited time.

Let us suppose that the child's progress is satisfactory, and that after six months he is found to be vastly improved, what may be done to minimize the chance of reinfection and another damaging cardiac episode? "The Rheumatic child reacts rheumatically." He is reacting to something not specifically known at present. We are unable to influence his natural reactivity so we must consider the advisability of removing him from the environment where he has the chance to react. This may mean a home away from the family in which he has developed the disease. Convalescent homes, although totally inadequate in number, are available in some localities. In general children are found to do better in these places than in their own homes. Better than this is removal of the child from the community where the disease is prevalent, to one, such as Florida or New Mexico, where apparently less rheumatic fever occurs. It must be remembered that in any case, following a period of residence away from home, the child almost surely must return to his own family, to be exposed again, as he was originally, to some of the etiological agents of rheumatic fever.

The question of the value of tonsillectomy in prevention of recurrences of rheumatic fever is controversial. It should be emphasized that if this operation is deemed advisable, complete removal, by means of careful dissection, should be done.

The value of early diagnosis may fail to be manifest in many cases in which the course of rheumatic heart disease is relentlessly downhill, but the patient's prognosis surely depends to some extent on early recognition of the disease and application of measures to combat it.

Besides the child himself, others who will probably be involved in his care are his family, a nurse or social worker, and his physician. Cooperation between these is highly desirable.

If the child remains at home throughout his illness, the family must be told of the nature of his disease and how best to care for him. Some families are gifted with the intelligence and ability to administer to their sick, others cannot with the utmost endeavor be taught to manage illness staisfactorily. It is apparent that if the home is not peaceful, or if care is not adequate, the child should be removed if possible. Since it appears that most children with rheumatic heart disease come from poor families, social workers play a large part in the management of the rheumatic population of a community. Often they form a valuable bond between physician and patient. Little need be said of the importance of the physician, not only for his technical knowledge of the condition with which he is dealing, but for what he may bring, through a long disheartening period, of support and encouragement to the patient and his family.

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